

What is claimed is:

1. A screen for cleaning a fiber suspension, the screen having at least one separation unit comprising:
 - a housing;
 - a substantially parabolic rotor disposed within the housing, the rotor having a running direction and extending axially from an area of minimum rotor diameter to an area of maximum rotor diameter;
 - a screen basket disposed between the housing and the rotor;
 - an accept chamber disposed between the screen basket and the housing;
 - a reject outlet disposed adjacent the area of maximum rotor diameter; and
 - at least one device for interrupting axial flow disposed adjacent the area of maximum rotor diameter.
2. The screen of claim 1 wherein the at least one device for interrupting axial flow is mounted to the housing or to the screen basket.
3. The screen of claim 1 wherein the at least one device for interrupting axial flow is mounted to the rotor.
4. The screen of claim 1 wherein the at least one device for interrupting axial flow comprises at least one axial flow interruption ring.
5. The screen of claim 4 wherein the at least one flow interruption ring is adjustable.
6. The screen of claim 4 wherein the at least one flow interruption ring includes an outer diameter having a toothed profile.

7. The screen of claim 1 wherein the at least one separation unit further comprises at least one inlet for dilution water, the at least one inlet being located adjacent the reject outlet.
8. The screen of claim 7 wherein the at least one inlet is mounted on the housing or on the screen basket.
9. The screen of claim 7 wherein the at least one inlet is mounted on the rotor and fed through a pipe mounted inside the rotor.
10. The screen of claim 7 wherein the at least one inlet is directed such that the dilution water is fed in the running direction of the rotor.
11. The screen of claim 7 wherein the at least one inlet is directed such that the dilution water is fed in an opposite direction to the running direction of the rotor.
12. The screen of claim 7 wherein the at least one inlet is coupled to the at least one device for interrupting axial flow.
13. The screen of claim 1 wherein the at least one separation unit further comprises a deflaking unit.
14. The screen of claim 13 wherein the deflaking unit includes at least one ring mounted on the housing, on the screen basket, or on the rotor.
15. The screen of claim 1 wherein the screen comprises a plurality of separation units, a common rotor extending axially through all of the separation units, the common rotor including a rotor segment disposed within each of the separation units, each rotor segment having a

substantially parabolic shape adapted to the flow conditions in the associated separation unit.

16. The screen of claim 15 wherein each separation unit has a height and the height of a one of the separation units is at least twice the sum of the heights of all of the separation units axially below the one separation unit.

17. The screen of claim 15 wherein each separation unit includes at least one device for interrupting axial flow.

18. The screen of claim 15 wherein each separation unit further comprises at least one inlet for dilution water, the at least one inlet being located adjacent the reject outlet.

19. The screen of claim 15 further comprising a deflaking unit.

20. The screen of claim 5 wherein the at least one flow interruption ring is an iris diaphragm.

21. The screen of claim 19 wherein the screen has first, second, and third separation units and the deflaking unit is disposed intermediate the second and third separation units.